

## **MEMORANDUM**

**Subject:** *Change in Duty Station for Maliha S. Nash, Ph.D.*

**From:** *Tim Watkins,  
Director, National Exposure Research Laboratory, NERL*

**TO:** *xxx  
Director, Human Resources*

### **Overview**

The Office of Research and Development (ORD) would like to relocate Dr. Maliha Nash from her duty station in Las Vegas, NV, directly to a duty station in Los Angeles, CA, at the EPA Region 9 Southern California Field Office (SCFO), effective October 01, 2018. She will retain her current position as Research Statistician in the System Exposure Division, Ecological and Human Community Analysis Branch, of the National Exposure Research Laboratory (NERL).

Dr. Nash has made numerous contributions to the fields of statistics, ecology, human health, and satellite-based remote sensing applications in the western United States, nationally, and internationally. We anticipate that this move will support her continued success as she takes on the added role of Ecological and Human Community EnviroAtlas ambassador to EPA Region 9 and the State of California.

### **Background**

The timing of this move is tied to the transfer of NERL-Las Vegas staff to ORD facilities in Cincinnati and Research Triangle Park, and it responds to the strategic direction of the overarching FY2018-2022 EPA Strategic Plan. Further, it provides support related to the EPA Chemical Safety and Sustainability (CSS) and Safe and Sustainable Water Resources (SSWR) and the Safe and Healthy Communities (SHC) Strategic Research Action Plans (StRAPs), and the National Academy of Science report, Exposure Science for the 21<sup>st</sup> Century. Embedding this employee in the SCFO of EPA Region 9 improves opportunities for translating key research, currently in progress, to achieve practical outcomes in environmental protection and decisionmaking. With the recently announced plans to close the ORD-Las Vegas, NV facility, there are advantages to continuing to have an employee, already involved in key research projects for the West, especially California, located in that state, as opposed to relocating to the eastern side of the U.S. If it were not for this proposed option, Dr. Nash would relocate at EPA expense and report to the main EPA building at Research Triangle Park (RTP), North Carolina. Associated costs to the Agency would include relocation costs, the increased costs of work-related coordination travel from RTP to California, and the additional time required (one day in transit each way for cross country travel, and an inability to schedule short-notice coordination meetings and presentations). Because she has family in the Los Angeles metro area, she can move there and report to the SCFO, at no cost to EPA. Working from this duty station will allow her to fulfill her current research obligations and coordinate the results more easily with EPA Region 9 and the State of California. Thus the proposed move for Dr. Nash meets EPA, ORD, and NERL strategic and practical goals at this time.

### **Earlier Research Accomplishments in the West**

Dr. Nash has been applying statistical tools to broad-scale and spatially explicit environmental problems during her career at EPA. The scientific significance of the research and impacts of her contributions have been multiple and diverse, rather than solely focused on a single topic or statistical method.

The diversity of her research expertise is invaluable in planning and executing human health and ecology studies because of the complexity of this growing field. Her contributions to US EPA as a statistician have not been solely in data manipulation and executing statistics, but also in serving as a key member of several interdisciplinary teams conducting analyses of the data. She has contributed design guidance to development of several projects in their early stages, applied innovative statistical approaches to address the requisite research questions, and refined/developed/documented statistical methods for use in EPA. Many of these projects have relied upon her as the sole statistical researcher, resulting in multiple publications and many first authorships. She has also collaborated effectively with people both within and outside the EPA, such as the USDA's Agricultural Research Service, EPA's Regional Offices, US Forest Service, and the academic community.

Her accumulated work from more than 30 years in the environmental sciences research field, spans a breadth of scientific applications that are used in both academic and federal institutions, both nationally and internationally (Please see attached CV.) The interdisciplinary research areas that epitomize her 30-year career are agriculture engineering, soil science and ecology, and human health, where mathematical and statistical analyses are employed. Her research interests and their geographical locations range from regional to national to international. As of May 2018, Research Gate (RG) shows that she accumulated 3,797 reads for 66 research items and 1,554 citations. Dr. Nash's RG index is 30.56 and h index is 22 (excluding self-citations). The h index has increased since her 2017 GS-14 promotion (previous h index = 16). This research produces results that are shared in the peer review literature as well as detailed explanatory reports.

Highlights of Dr. Nash's previous research in the West encompass:

In the category of threatened and endangered species,

- co-authored a journal article about habitat patch occupancy by the Red-Spotted Toad (*Bufo Punctatus*) in a Naturally Fragmented, Desert Landscape (cv VII, 31) (Nevada, Arizona, eastern California). The most important variable affecting the presence of toads was elevation, followed by water salinity and percentage of bedrock substrate.
- Addressed questions about pesticide use and amphibian population declines in the Sierra Nevada Mountains of California (cv VI, 10, 11, 16, 18, and 19, EPA 2013 STAA level II). Four pesticides (endosulfane, propargite, dacthal, and simazine) were analyzed. As a consequence of this work, the US Fish and Wildlife Service in its proposed and final rules to list the two amphibian species as endangered or threatened, cited our studies, and concluded that these pesticide contaminants, "do not pose a current or continuing threat to the species."

In the category of landscape ecology, Dr. Nash's research addressed

- Grazing as a factor impacting stream water quality in Oregon [cv VI, 20], and
- Greenness Index in relation to urban growth, wildfire, and forest harvesting in New Mexico, the western U.S., and the conterminous U.S. [cv VI, 7, 2 and cv 1., 6].

In the area of human health, Dr. Nash worked on the

- Tire Crumb study, that collected tire crumb samples at 10 fields in the West U.S. census region, which covers 11 states, including California. Dr. Nash's role was in data integration, summarization, and producing data sets formatted for the final report and to be used in models. Her role was essential to meet the report submission dates.
- Another human health study that Dr. Nash coauthored was in Distribution, Variability, and Predictors of Urinary Bisphenol-A Levels in 50 North Carolina Adults over a Six-Week Monitoring Period [cv VI, 1]. Her role was in performing the statistical analyses and developing "urine" model to determine the effects of available (non-environmental matrix) predictors on urinary Bisphenol A (BPA) concentration.
- Statistical advice and input to "Evaluation the Influence of the Natural Environment on Women's Health and Wellbeing" study.

### ***Current Research in the West***

In the category of threatened and endangered species, Dr. Nash has been working on

California Case Study for Aquatic Endangered Species, that is part of the Chemical Safety and Sustainability (CSS) Project, Integrated Modeling for Ecological Risk Assessment, EcoMod. Research is being conducted through case studies of priority pesticides and will develop, evaluate, and demonstrate approaches that improve endangered species risk assessments and reduce knowledge-based uncertainties. The overarching research goal is to develop approaches that transition from the current EPA "risk-quotient" process toward probabilistic risk assessment for threatened and endangered species using logical, interim steps, some of which will also address high priority short-term needs. Near-term research includes evaluating selected existing approaches within case studies, as well as initiating research that addresses longer term needs (e.g., probabilistic spatial approaches, generic population models). Both near- and long-term research goals will focus on approaches that can be used throughout different tiers of threatened and endangered species assessment, from national-level screening through higher-tiered, location-specific assessments. This research supports two tasks within this CSS project; "Spatially-Explicit Estimation of External Dose" [CSS 18.04.3] and "Case Study- Pesticides Impacts to Aquatic Endangered Species," [CSS 18.04.6] One of the main reasons California was chosen as the location for conducting this case study is that this state's agencies (and taxpayers) have invested heavily in characterizing pesticide use and impacts.

In the category of ecosystems services and community decision-making, Dr. Nash has been a long-term contributor to EPA's EnviroAtlas [cv VI, 2, 3, many abstracts]. This role will continue as she continues to work on and share results from analyses of spatial and community data provided in EnviroAtlas. For example, the city of Fresno is one of the urban areas in EnviroAtlas that has been characterized at the one-meter scale, lending itself to analyses of urban heat island effects. Dr. Nash's expertise will enable her to teach and share EnviroAtlas capabilities with a wide range of students at high school, college, and graduate levels. She will also be readily available to teach this information and updates at federal agency training institutes located in California, fulfilling the responsibilities of EnviroAtlas Ambassador.

### ***Collaboration***

Our research activities will be conducted in collaboration with USEPA Region 9, USEPA Offices of Pesticide Programs, and Pollution Prevention and Toxic Substances; California State Water Resources Control Board, California Department of Pesticide Regulation (CA DPR), California Department of Fish

and Wildlife, US Department of Agriculture Agricultural Research Service and Natural Resource Conservation Service, US Department of Interior Fish and Wildlife Service, US Geological Survey, and the National Oceanic and Atmospheric Administration. All of these government agencies have quality assurance programs in place. We will also collaborate on rice modeling with the University of California-Davis Agricultural Geographic Information System (AGIS) Laboratory.

### ***Summary***

Historically, California has faced its environmental issues and responded with informed management of its resources. As a result, EPA can advance its priorities by working in concert with this and other States, on common goals. The change in duty station for Dr. Nash is advantageous to NERL and ORD as it seeks to advance the safe and sustainable water resources priorities, improve chemical safety and sustainability evaluation approaches, and promote safe and healthy communities. Further, it supports ORD's goals of providing relevant, timely, and responsive research and development products, "translating" research that usable for decision-making, particularly by local communities and decision makers, strengthening interaction with all EPA regions, and supporting state, tribal, and community needs. This relocation will provide additional ORD presence in the SCFO by complementing the current ORD Regional Scientist, Dr. Matt Small in the EPA Region 9 Office in San Francisco; and enabling collaboration with Dr. Jose Zambrana, NERL Associate Director; and Dr. Stephen Kraemer, scientist for NERL's Integrated Environmental Monitoring Branch, both located in the SCFO in Los Angeles.

The practical details associated with the change in duty station are covered in an MOU between ORD and R9.

**Concurrence:** Jay Garland, Ph.D.

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Michael E. McDonald

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